

TABLE OF CONTENTS**COVER PAGE****EXECUTIVE SUMMARY****TABLE OF CONTENTS****LIST OF FIGURES****LIST OF TABLES****LIST OF ACRONYMS/ABBREVIATIONS/SYMBOLS**

1.0 PURPOSE AND NEED FOR PROPOSED ACTION	1-1
1.1 PROJECT OVERVIEW	1-1
1.2 BRIEF HISTORY AND DESCRIPTION OF BFN	1-2
1.3 THE TVA POWER SYSTEM	1-2
1.4 PROJECTING TVA'S NEEDS FOR GENERATING CAPACITY	1-4
1.4.1 THE <i>ENERGY VISION 2020</i> PLANNING PROCESS	1-4
1.4.2 <i>ENERGY VISION 2020</i> RECOMMENDATIONS AND POWER NEED FORECAST	1-6
1.4.3 EXPERIENCE SINCE THE RELEASE OF <i>ENERGY VISION 2020</i>	1-10
1.4.4 INTEGRATING SUPPLY-SIDE AND DEMAND-SIDE ALTERNATIVES TO MEET CUSTOMER NEEDS	1-12
1.5 SEIS OVERVIEW/NEPA APPROACH.....	1-14
1.5.1 TIERING FROM <i>ENERGY VISION 2020</i>	1-14
1.5.2 TIERING FROM THE BFN ENVIRONMENTAL STATEMENT.....	1-18
1.5.3 OTHER RELEVANT NEPA REVIEWS.....	1-18
1.5.3.1 <i>Completed NEPA Actions</i>	1-18
1.5.3.1.1 Generic Environmental Impact Statement for License Renewal of Nuclear Plants, NUREG-1437	1-18
1.5.3.1.2 Highly Enriched Uranium FEIS.....	1-19
1.5.3.2 <i>Unit Upgrades</i>	1-20
1.5.3.3 <i>Reservoir Operations Study (ROS)</i>	1-20
1.6 PURPOSE OF THE PROPOSED ACTION	1-21
1.7 NEED FOR THE PROPOSED ACTION.....	1-21
1.8 REFERENCES.....	1-23
2.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION	2-1
2.1 DESCRIPTION OF THE NO ACTION ALTERNATIVE	2-1
2.2 SCREENING OF ACTION ALTERNATIVES.....	2-4
2.2.1 PROPOSED ACTION ALTERNATIVES FOR THIS SEIS	2-5
2.2.2 ASSOCIATED CONDENSER CIRCULATING WATER FLOW RATES.....	2-8
2.2.3 ASSOCIATED COOLING TOWER IMPACTS AND ALTERNATIVES.....	2-10
2.2.4 SPENT FUEL STORAGE OPTIONS	2-21
2.2.5 DECOMMISSIONING OPTIONS	2-23
2.3 DESCRIPTION OF ACTIONS COMMON TO ALL ACTION ALTERNATIVES ..	2-26

Table of Contents

2.3.1 EXTENDED POWER UPRATE.....	2-26
2.3.2 DRY CASK STORAGE FACILITY	2-27
2.3.3 MODIFICATIONS FABRICATION BUILDING	2-28
2.4 DESCRIPTION OF ACTIONS SPECIFIC TO ASSOCIATED ALTERNATIVES ..	2-28
2.4.1 EXTENDED OPERATION OF UNITS 2 AND 3	2-28
2.4.2 EXTENDED OPERATION OF UNITS 2 AND 3 PLUS RECOVERY AND RESTART OF UNIT 1	2-29
2.4.2.1 <i>Restart of Unit 1</i>	2-31
2.4.2.2 <i>New Administration Building</i>	2-34
2.4.2.3 <i>Power Transmission System Impacts</i>	2-35
2.5 SUMMARY OF PROPOSED ALTERNATIVES ..	2-35
2.6 COMPARISON OF ENVIRONMENTAL CONSEQUENCES.....	2-36
2.6.1 COMPARISON BY RESOURCE.....	2-36
2.6.2 COMPARISON BY ALTERNATIVE.....	2-45
2.7 COMPARISON OF COSTS BETWEEN ALTERNATIVES ..	2-54
2.8 THE PREFERRED ALTERNATIVE ..	2-55
2.9 REFERENCES ..	2-57
 3.0 AFFECTED ENVIRONMENT ..	3-1
3.1 AIR RESOURCES.....	3-1
3.1.1 CLIMATE AND METEOROLOGY	3-1
3.1.2 AMBIENT AIR QUALITY	3-1
3.1.3 EXISTING AIR EMISSION SOURCES	3-2
3.1.4 AIR QUALITY DURING REFURBISHMENT.....	3-2
3.2 GEOLOGIC SETTING ..	3-3
3.2.1 LOCAL AND REGIONAL GEOLGY	3-3
3.2.2 GEOLOGIC STRUCTURE AND FAULTING	3-3
3.2.3 SEISMICITY	3-3
3.3 SOLID WASTES MANAGEMENT AND PAST PRACTICES ..	3-5
3.3.1 GENERAL PLANT TRASH.....	3-5
3.3.2 CONSTRUCTION/DEMOLITION DEBRIS	3-5
3.3.3 LOW-LEVEL RADIOACTIVE WASTE.....	3-5
3.4 HAZARDOUS WASTES MANAGEMENT AND PAST PRACTICES ..	3-6
3.5 SPENT FUEL MANAGEMENT.....	3-6
3.6 SURFACE WATER RESOURCES ..	3-7
3.6.1 WHEELER RESERVOIR DESCRIPTION	3-7
3.6.2 WATER QUALITY	3-8
3.6.3 TEMPERATURE	3-8
3.6.4 WATER INTAKES AND WASTEWATER DISCHARGES	3-10
3.6.5 WATER USE CONFLICTS	3-10
3.7 GROUNDWATER RESOURCES ..	3-11

Table of Contents

3.7.1 GROUNDWATER OCCURRENCE.....	3-11
3.7.2 GROUNDWATER USE.....	3-13
3.8 FLOODPLAINS AND FLOOD RISK.....	3-13
3.8.1 CURRENT CONDITIONS	3-13
3.8.2 ANTICIPATED FUTURE CONDITIONS.....	3-14
3.9 TERRESTRIAL ECOLOGY	3-15
3.9.1 VEGETATION.....	3-15
3.9.2 WILDLIFE	3-15
3.9.3 INTRODUCED SPECIES.....	3-16
3.9.4 MANAGED AREAS AND ECOLOGICALLY SIGNIFICANT SITES.....	3-16
3.10 AQUATIC ECOLOGY	3-17
3.10.1 FISH.....	3-17
3.10.2 BENTHIC ORGANISMS	3-20
3.10.3 INTRODUCED SPECIES.....	3-22
3.10.4 ENTRAINMENT AND IMPINGEMENT OF FISH AND SHELLFISH, HEAT SHOCK	3-22
3.10.5 MICROBIOLOGICAL ORGANISMS	3-23
3.11 THREATENED AND ENDANGERED SPECIES.....	3-25
3.11.1 ANIMAL.....	3-25
3.11.2 AQUATIC.....	3-25
3.11.3 PLANTS	3-26
3.12 WETLANDS.....	3-26
3.13 SOCIOECONOMIC CONDITIONS.....	3-27
3.13.1 DEMOGRAPHY.....	3-27
3.13.2 ECONOMIC CONDITIONS	3-28
3.13.3 COMMUNITY SERVICES AND HOUSING.....	3-31
3.13.4 ENVIRONMENTAL JUSTICE.....	3-31
3.14 TRANSPORTATION.....	3-32
3.14.1 HIGHWAYS AND ROADS.....	3-32
3.14.2 RAILROADS	3-33
3.14.3 RIVER TRANSPORT.....	3-33
3.14.4 PIPELINES.....	3-35
3.14.5 TRANSMISSION LINES	3-35
3.15 SOIL AND LAND USES.....	3-35
3.15.1 BFN ENVIRONS.....	3-35
3.15.2 PAST AND EXISTING LAND USES (INCLUDING OFFSITE).....	3-36
3.15.3 LAND USE PLANNING AND CONTROLS.....	3-37
3.16 VISUAL RESOURCES.....	3-38
3.17 RECREATION	3-39
3.18 CULTURAL RESOURCES.....	3-39
3.18.1 ARCHEOLOGICAL RESOURCES.....	3-39
3.18.2 HISTORICAL STRUCTURES	3-41

Table of Contents

3.19 ENVIRONMENTAL NOISE.....	3-42
3.19.1 INTRODUCTION	3-42
3.19.2 POTENTIALLY AFFECTED AREAS.....	3-42
3.19.3 NOISE REGULATIONS, ORDINANCES, GUIDELINES, AND OTHER USEFUL CRITERIA ..	3-43
3.19.4 POTENTIAL EFFECTS OF ENVIRONMENTAL NOISE	3-43
3.19.4.1 <i>Hearing Loss</i>	3-43
3.19.4.2 <i>Annoyance and Complaints</i>	3-44
3.19.4.3 <i>Communication Interference</i>	3-44
3.19.5 CURRENT NOISE ENVIRONMENT	3-45
3.20 PUBLIC AND OCCUPATIONAL SAFETY & HEALTH (NON-RADIOLOGICAL)	3-46
3.20.1 SITE SAFETY AND HEALTH PLAN	3-46
3.20.2 TVA'S EMPLOYEE SAFETY PROGRAM	3-47
3.20.3 FIRE PROTECTION	3-48
3.20.4 ELECTRIC AND MAGNETIC FIELDS	3-49
3.20.5 SHOCK HAZARDS	3-50
3.20.6 AIRBORNE PATHOGENIC MICROORGANISMS	3-50
3.20.7 HAZARDOUS CHEMICALS	3-51
3.20.8 SITE EMERGENCY RESPONSE PLAN	3-54
3.21 RADIOLOGICAL IMPACTS BASELINE.....	3-54
3.21.1 NORMAL OPERATIONS.....	3-54
3.21.1.1 <i>Occupational</i>	3-54
3.21.1.2 <i>Public</i>	3-54
3.21.2 FACILITY (DESIGN BASIS) ACCIDENTS.....	3-56
3.21.3 SITE RADIOLOGICAL EMERGENCY RESPONSE PLAN.....	3-56
3.21.4 SEVERE ACCIDENT MITIGATION ALTERNATIVES.....	3-58
3.22 REFERENCES.....	3-60
4.0 ENVIRONMENTAL CONSEQUENCES	4-1
4.1 IMPACTS TO THE ENVIRONMENT ASSOCIATED WITH THE NO ACTION ALTERNATIVE	4-1
4.1.1 DECOMMISSIONING.....	4-1
4.1.2 POWER REPLACEMENT ALTERNATIVES	4-4
4.1.3 SOCIOECONOMIC IMPACTS OF DISCONTINUING PLANT OPERATIONS AT EXPIRATION OF CURRENT LICENSES	4-4
4.1.3.1 <i>Economic Conditions</i>	4-5
4.1.3.2 <i>Demography</i>	4-6
4.1.3.3 <i>Community Services and Housing</i>	4-6
4.1.3.4 <i>Local Government Revenues</i>	4-6
4.1.3.5 <i>Environmental Justice</i>	4-6
4.2 IMPACTS TO THE ENVIRONMENT ASSOCIATED WITH ALTERNATIVE 1.....	4-7
4.2.1 AIR RESOURCES	4-7
4.2.1.1 <i>Climate and Meteorology</i>	4-7
4.2.1.2 <i>Ambient Air Quality</i>	4-7
4.2.1.3 <i>Existing Air Emission Sources</i>	4-8

Table of Contents

4.2.1.4 <i>Air Quality Impacts</i>	4-9
4.2.2 GEOLOGIC SETTING	4-9
4.2.2.1 <i>Impacts on Geology</i>	4-9
4.2.2.2 <i>Impacts of Construction on Seismicity</i>	4-9
4.2.2.3 <i>Impacts of Operation on Seismicity</i>	4-10
4.2.3 SOLID WASTES MANAGEMENT AND PAST PRACTICES.....	4-10
4.2.3.1 <i>General Plant Trash</i>	4-10
4.2.3.2 <i>Construction/Demolition Debris</i>	4-10
4.2.3.3 <i>Low Level Radioactive Waste</i>	4-10
4.2.4 HAZARDOUS WASTES MANAGEMENT AND PAST PRACTICES	4-11
4.2.5 SPENT FUEL MANAGEMENT	4-11
4.2.6 SURFACE WATER RESOURCES.....	4-11
4.2.6.1 <i>Construction Effects</i>	4-11
4.2.6.2 <i>Chemical Effluent Effects</i>	4-12
4.2.6.3 <i>Thermal Effects</i>	4-14
4.2.6.4 <i>Water Use/Water Availability</i>	4-14
4.2.6.5 <i>Microbiological Organisms</i>	4-14
4.2.7 GROUNDWATER RESOURCES.....	4-14
4.2.7.1 <i>Groundwater Occurrence</i>	4-14
4.2.7.2 <i>Groundwater Use</i>	4-15
4.2.8 FLOODPLAINS AND FLOOD RISK.....	4-15
4.2.9 TERRESTRIAL ECOLOGY	4-16
4.2.9.1 <i>Vegetation</i>	4-16
4.2.9.2 <i>Wildlife</i>	4-16
4.2.9.3 <i>Introduced Species</i>	4-16
4.2.9.4 <i>Managed Areas and Ecologically Significant Sites</i>	4-17
4.2.9.5 <i>Refurbishment Impacts</i>	4-17
4.2.10 AQUATIC ECOLOGY	4-17
4.2.10.1 <i>Fish</i>	4-17
4.2.10.2 <i>Benthic Organisms</i>	4-19
4.2.10.3 <i>Introduced Species</i>	4-20
4.2.10.4 <i>Entrainment and Impingement of Fish and Shellfish, Heat Shock</i>	4-21
4.2.10.5 <i>Microbiological Organisms</i>	4-21
4.2.11 THREATENED AND ENDANGERED SPECIES.....	4-21
4.2.11.1 <i>Animals</i>	4-21
4.2.11.2 <i>Aquatic</i>	4-21
4.2.11.3 <i>Plants</i>	4-22
4.2.12 WETLANDS	4-22
4.2.13 SOCIOECONOMIC CONDITIONS	4-22
4.2.13.1 <i>Demography</i>	4-22
4.2.13.2 <i>Economic Conditions</i>	4-22
4.2.13.3 <i>Community Services and Housing</i>	4-22
4.2.13.4 <i>Local Government Revenues</i>	4-23
4.2.13.5 <i>Environmental Justice</i>	4-23
4.2.14 TRANSPORTATION	4-23
4.2.14.1 <i>Highways and Roads</i>	4-23
4.2.14.2 <i>Railroads</i>	4-24
4.2.14.3 <i>River Transport</i>	4-24
4.2.14.4 <i>Pipelines</i>	4-24
4.2.14.5 <i>Transmission Lines</i>	4-24
4.2.15 SOILS AND LAND USES	4-24

Table of Contents

4.2.16 VISUAL RESOURCES	4-25
4.2.17 RECREATION	4-26
4.2.18 CULTURAL RESOURCES	4-27
4.2.18.1 <i>Archaeological Resources</i>	4-27
4.2.18.2 <i>Historical Structures</i>	4-27
4.2.19 ENVIRONMENTAL NOISE	4-27
4.2.20 PUBLIC AND OCCUPATIONAL SAFETY & HEALTH (NON-RADIOLOGICAL)	4-28
4.2.21 RADIOLOGICAL IMPACTS.....	4-28
4.2.21.1 <i>Normal Operation</i>	4-28
4.2.21.1.1 Occupational.....	4-28
4.2.21.1.2 Public.....	4-28
4.2.21.2 <i>Facility (Design Basis) Accidents</i>	4-29
4.2.21.3 <i>Severe Accident Mitigation Alternatives</i>	4-29
4.2.22 DECOMMISSIONING IMPACTS	4-31
4.3 IMPACTS TO THE ENVIRONMENT ASSOCIATED WITH ALTERNATIVE 2...4-32	
4.3.1 AIR RESOURCES.....	4-32
4.3.1.1 <i>Climate and Meteorology</i>	4-32
4.3.1.2 <i>Ambient Air Quality</i>	4-32
4.3.1.3 <i>Existing Air Emission Sources</i>	4-33
4.3.1.4 <i>Air Quality During Refurbishment</i>	4-33
4.3.2 GEOLOGIC SETTING	4-34
4.3.2.1 <i>Impacts on Geology</i>	4-34
4.3.2.2 <i>Impacts of Construction on Seismicity</i>	4-34
4.3.2.3 <i>Local Geology</i>	4-34
4.3.3 SOLID WASTES MANAGEMENT AND PAST PRACTICES.....	4-34
4.3.3.1 <i>General Plant Trash</i>	4-34
4.3.3.2 <i>Construction/Demolition Debris</i>	4-35
4.3.3.3 <i>Low Level Radioactive Waste</i>	4-35
4.3.4 HAZARDOUS WASTES MANAGEMENT AND PAST PRACTICES	4-36
4.3.5 SPENT FUEL MANAGEMENT	4-36
4.3.6 SURFACE WATER RESOURCES.....	4-36
4.3.6.1 <i>Construction Effects</i>	4-36
4.3.6.2 <i>Chemical Effluent Effects</i>	4-37
4.3.6.3 <i>Thermal Effects</i>	4-37
4.3.6.4 <i>Water Use/Water Availability</i>	4-41
4.3.6.5 <i>Microbiological Organisms</i>	4-42
4.3.7 GROUNDWATER RESOURCES	4-42
4.3.7.1 <i>Groundwater Occurrence</i>	4-42
4.3.7.2 <i>Groundwater Use</i>	4-43
4.3.8 FLOODPLAINS AND FLOOD RISK.....	4-43
4.3.9 TERRESTRIAL ECOLOGY	4-44
4.3.9.1 <i>Vegetation</i>	4-44
4.3.9.2 <i>Wildlife</i>	4-44
4.3.9.3 <i>Introduced Species</i>	4-45
4.3.9.4 <i>Managed Areas and Ecologically Significant Sites</i>	4-45
4.3.9.5 <i>Refurbishment Impacts</i>	4-45
4.3.10 AQUATIC ECOLOGY	4-46
4.3.10.1 <i>Fish</i>	4-46
4.3.10.2 <i>Benthic Organisms</i>	4-46
4.3.10.3 <i>Introduced Species</i>	4-46

Table of Contents

4.3.10.4 Entrainment and Impingement of Fish and Shellfish, Heat Shock	4-46
4.3.10.5 Microbiological Organisms.....	4-48
4.3.11 THREATENED AND ENDANGERED SPECIES.....	4-49
4.3.11.1 Animals	4-49
4.3.11.2 Aquatic.....	4-49
4.3.11.3 Plants	4-49
4.3.12 WETLANDS	4-49
4.3.13 SOCIOECONOMIC CONDITIONS	4-50
4.3.13.1 Demography	4-50
4.3.13.2 Economic Conditions.....	4-50
4.3.13.3 Community Services and Housing.....	4-51
4.3.13.4 Local Government Revenues	4-51
4.3.13.5 Environmental Justice	4-52
4.3.14 TRANSPORTATION	4-52
4.3.14.1 Highways and Roads	4-52
4.3.14.2 Railroads	4-54
4.3.14.3 River Transport.....	4-54
4.3.14.4 Pipelines	4-54
4.3.14.5 Transmission Lines	4-54
4.3.15 SOILS AND LAND USES	4-55
4.3.15.1 BFN Environs	4-55
4.3.15.2 Future Land Uses/Modifications (Including Offsite).....	4-56
4.3.15.3 Land Use Planning and Controls	4-56
4.3.16 VISUAL RESOURCES	4-56
4.3.17 RECREATION	4-59
4.3.18 CULTURAL RESOURCES	4-60
4.3.18.1 Archaeological Resources	4-60
4.3.18.2 Historical Structures.....	4-60
4.3.19 ENVIRONMENTAL NOISE	4-60
4.3.19.1 Construction Noise	4-61
4.3.19.2 Intruding Noise	4-62
4.3.19.3 Effects	4-63
4.3.19.3.1 Guidelines.....	4-63
4.3.19.3.2 Hearing Loss.....	4-63
4.3.19.3.3 Annoyance	4-63
4.3.19.3.4 Communication Interference	4-64
4.3.19.4 Summary.....	4-64
4.3.20 SAFETY AND HEALTH (NON-RADIOLOGICAL).....	4-64
4.3.21 RADIOLOGICAL IMPACTS.....	4-64
4.3.21.1 Normal Operation.....	4-64
4.3.21.1.1 Occupational.....	4-64
4.3.21.1.2 Public.....	4-69
4.3.21.2 Facility (Design Basis) Accidents.....	4-69
4.3.21.3 Severe Accident Mitigation Alternatives	4-69
4.3.22 DECOMMISSIONING IMPACTS	4-69
4.4 IDENTIFICATION OF MITIGATION MEASURES.....	4-69
4.4.1 AIR RESOURCES.....	4-70
4.4.2 GEOLOGY	4-70
4.4.3 SOLID WASTES MANAGEMENT AND PAST PRACTICES.....	4-70
4.4.4 HAZARDOUS WASTES MANAGEMENT AND PAST PRACTICES	4-70
4.4.5 SPENT FUEL MANAGEMENT	4-71

Table of Contents

4.4.6 SURFACE WATER RESOURCES.....	4-71
4.4.7 GROUNDWATER RESOURCES.....	4-71
4.4.8 FLOODPLAINS AND FLOOD RISK.....	4-71
4.4.9 TERRESTRIAL ECOLOGY	4-71
4.4.10 AQUATIC ECOLOGY	4-71
4.4.11 THREATENED AND ENDANGERED SPECIES.....	4-72
4.4.12 WETLANDS	4-72
4.4.13 SOCIOECONOMIC CONDITIONS	4-72
4.4.14 TRANSPORTATION	4-72
4.4.15 SOILS AND LAND USES	4-72
4.4.16 VISUAL RESOURCES	4-72
4.4.17 RECREATION	4-73
4.4.18 CULTURAL RESOURCES	4-73
4.4.19 ENVIRONMENTAL NOISE	4-73
4.4.20 PUBLIC AND OCCUPATIONAL SAFETY & HEALTH (NON-RADIOLOGICAL)	4-73
4.4.21 RADIOLOGICAL IMPACTS.....	4-74
4.5 IRREVERSIBLE ADVERSE IMPACTS.....	4-74
4.6 RELATIONSHIP OF SHORT-TERM USES AND LONG-TERM PRODUCTIVITY	4-75
4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES....	4-75
4.8 REFERENCES.....	4-78
5.0 PERMITS AND APPROVALS	5-1
5.1 INTRODUCTION AND SCOPE.....	5-1
5.2 OVERVIEW OF REQUIRED PERMITS/APPROVAL	5-1
5.2.1 OPERATING LICENSE RENEWAL	5-1
5.2.1.1 <i>License Renewal Background</i>	5-1
5.2.1.2 <i>License Renewal Documentation</i>	5-2
5.2.2 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT	5-3
5.2.3 AIR POLLUTION CONTROL PERMITS.....	5-3
5.2.4 SOLID WASTE DISPOSAL PERMIT	5-4
5.3 NEW PERMITS AND APPROVALS NOT REQUIRED, NOT APPLICABLE, OR INDIRECTLY APPLICABLE	5-5
5.3.1 LAND USE	5-5
5.3.2 WETLANDS	5-5
5.3.3 FLOODPLAINS	5-5
5.3.4 BIOLOGICAL.....	5-6
5.3.5 CULTURAL RESOURCES	5-6
5.3.6 AIR NAVIGATION	5-6
5.3.7 NOISE	5-7
5.3.8 EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW	5-7
5.3.9 HEALTH AND SAFETY	5-7
6.0 PUBLIC PARTICIPATION AND COORDINATION EFFORTS.....	6-1

Table of Contents

6.1 TVA SCOPING AND PUBLIC PARTICIPATION PROCESS	6-1
6.1.1 PUBLIC INVOLVEMENT.....	6-1
6.1.2 MAJOR ISSUES OF PUBLIC CONCERN.....	6-2
6.2 PUBLIC AND AGENCY REVIEW OF THE DSEIS	6-3
6.3 LEAD AND COOPERATING AGENCIES.....	6-5
 7.0 LIST OF PREPARERS	 7-1
 8.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT ARE SENT	 8-1

APPENDICES

Appendix A	BNF SEVERE ACCIDENT MITIGATION ALTERNATIVES (SAMA) ANALYSIS
Appendix B	SUPPORTING TECHNICAL DATA
Appendix C	AGENCY CORRESPONDENCE
Appendix D	SCOPING MEETING REPORT
Appendix E	ANNOUNCEMENTS, NOTICES, AND NEWS RELEASES
Appendix F	INDIVIDUALS AND AGENCIES PROVIDING COMMENTS
Appendix G	RESPONSES TO PUBLIC COMMENTS

INDEX

GLOSSARY

Table 1.4-1	TVA Generation Capacity by Energy Source	1-11
Table 2.2.1-1	Summary of Power Levels (in net megawatts electric)	2-8
Table 2.4-1	Hardware Impacts Associated with Unit 1 Recovery	2-33
Table 2.5-1	Summary of BFN Unit Attributes	2-35
Table 2.6-1	Summary of Environmental Impacts for BFN License Renewal SEIS Alternatives	2-46
Table 3.6-1	Summary of Wheeler Reservoir Water Quality	3-8
Table 3.6-2	Potable Water Intakes on Wheeler Reservoir	3-10
Table 3.6-3	Wastewater Discharges on Wheeler Reservoir	3-11
Table 3.10-1	Fish Species Collected in the Vicinity of BFN by TVA During BFN Monitoring and Reservoir Monitoring Activities, 1995 – 2000	3-18
Table 3.10-2	Mussel Species Collected by Alabama Game and Fish Division Near Browns Ferry Nuclear Plant in 1999	3-21
Table 3.11-1	Rare Terrestrial Animal Species Known From Limestone County, Alabama	3-25
Table 3.11-2	Rare Plant Species Known from Limestone County, Alabama	3-26
Table 3.13-1	Population and Population Projections	3-28
Table 3.13-2	Population Growth Rates	3-28
Table 3.13-3	Labor Force and Unemployment, 2000	3-29
Table 3.13-4	Total Employment (Full-time and Part-time), by Place of Work	3-30
Table 3.13-5	Projected Total Employment, 2015 and 2035	3-30
Table 3.13-6	Percent Distribution by Industry Employment (Full-time and Part-time), by Place of Work, 1999	3-30
Table 3.13-7	Per Capita Personal Income	3-31
Table 3.13-8	Minority Population, 2000, and Percent Below Poverty Level, 1997	3-32
Table 3.19-1	Percentage Highly Annoyed Based on DNL	3-44
Table 3.19-2	Current Noise Environment	3-46
Table 3.20-1	Chemical Storage by Area	3-52
Table 4.1-1	Category 1 Issues Applicable to the Decommissioning of BFN Following the Renewal Term	4-2
Table 4.2.1-1	Emissions Calculation Results Presented in 1972 EIS (tons/yr)	4-8
Table 4.2.1-2	Additional Emission Sources	4-9
Table 4.2.6-1	Summary of Project Usage Rates for Chemical Effluents	4-13
Table 4.2.10-1	Upper Thermal Temperatures Tolerances of Juvenile and Adult Fish Found in Wheeler Reservoir	4-19
Table 4.2.16-1	Summary of Height/Size Information	4-26
Table 4.3.6-1	Summary of Projected Thermal Effects on Water Temperatures (°F)	4-38
Table 4.3.6-2	Summary of Projected Wheeler Reservoir Modeling Analysis for 1988	4-41
Table 4.3.16-1	Summary of Height/Size Information	4-57
Table 4.3.19-1	Total Noise at Paradise Shores and Lakeview Community for Alternative 2 (All Data I dBA)	4-62
Table 4.3.21-1	Baseline Occupational Radiation Dose (rem)	4-65
Table 4.3.21-2	Extended Power Up-Rate Dose Impact	4-66
Table 4.3.21-3	Annual Occupational Radiation Dose Increased Cancer Risk Relative to U.S. Population Background Dose	4-68
Table 4.3.21-4	Occupational Radiation Dose Increased Cancer Risk Relative to BWR Industry Collective Dose	4-68
Table 4.7-1	Irreversible and Irretrievable Commitments of Resources	4-77
Table 5.2.2-1	Discharge Points and Effluents of NPDES Permit	5-4

List of Figures

Figure 1.2-1	Location of Browns Ferry Nuclear Power Plant	1-3
Figure 1.3-1	Tennessee Valley Authority Power System	1-5
Figure 1.4-1	TVA Historic System Peak Loads and Demand Projections	1-8
Figure 1.4-2	TVA Historic System Baseloads and Demand Projections	1-9
Figure 2.0-1	Current Facilities at BFN	2-2
Figure 2.0-2	Current Facilities at BFN (Details) at BFN	2-3
Figure 2.2-1	Facilities Associated with Alternative 1	2-6
Figure 2.2-2	Facilities Associated with Alternative 1	2-7
Figure 2.2-3	Facilities Associated with Alternative 2	2-9
Figure 2.2-4	Location of Sixth Cooling Tower for Alternative 1	2-11
Figure 2.2-5	Diagram of Typical Mechanical Draft Cooling Tower	2-12
Figure 2.2-6	Location of Cooling Towers for Alternative 2A	2-14
Figure 2.2-7	Location of Areas for Spoils Deposition	2-15
Figure 2.2-8	Location of Cooling Towers for Alternative 2B	2-16
Figure 2.2-9	Location of Cooling Towers for Alternative 2C	2-18
Figure 2.2.10	Location of Cooling Towers for Alternative 2D	2-19
Figure 2.4-2	Browns Ferry Unit 1 Recovery Staffing Plan	2-32
Figure 3.10-1	Chlorophyll <i>a</i> Concentrations from Wheeler Reservoir Transition Station, Vital Signs Monitoring 1990 – 2000	3-24
Figure 3.14-1	Local Road Network for BFN	3-34
Figure 3.15-1	Land Use In Limestone County	3-37
Figure 4.3.6-1	Water Temperature for Two-Unit and Three-Unit Operation, 1988	3-39
Figure 4.3.10-1	Average Daily of Fish Eggs and Larvae at Plant Transect (TRM 2945) and Intake Basin at Browns Ferry Nuclear, 1978 - 1980	4-48
Figure 4.3.21-1	Dose Response Models that Predict How the Effects of Radiation Vary with Dose at Low Levels	3-67

List of Abbreviations

°F	Degrees Fahrenheit
ACHP	Advisory Council on Historic Preservation
AD	After Death
ADEM	Alabama Department of Environmental Management
ADT	Average Daily Traffic
ADOT	Alabama Department of Transportation
AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
APE	Area of Potential Effect
AREOR	Annual Radiological Environmental Operating Report
ARPA	Archaeological Resources Protection Act
avg	Average
BC	Before Christ
BEIR	Biological Effects of Ionizing Radiation
BGE	Baltimore Gas & Electric
BIBI	Benthic Index of Biotic Integrity
BMP	Best Management Practices
Btu	British Thermal Unit
BNF	Browns Ferry Nuclear Plant
BWR	Boiling Water Reactor
CCNPP	Calvert Cliffs Nuclear Power Plant
CCW	Condenser Circulating Water
C/D	Construction/Demolition
CFD	Computational Fluid Dynamics
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CRD	Control Rod Drive
CRDA	Control Rod Drop Accident
CTC	Chemical Traffic Control
CWA	Clean Water Act
CY	Calendar Year
DASHO	Designated Agency Safety and Health Officials
DAW	Dry Active Waste
dBA	Decibel, A-weighted
DNL	Sound Level Day/Night
DO	Dissolved Oxygen
DOE	U.S. Department of Energy
DSEP	Detailed Scoping, Estimating, and Planning
DSN	Discharge Serial Number
EA	Environmental Assessment
EECW	Emergency Equipment Cooling Water
EIS	Environmental Impact Statement
EMF	Electric and Magnetic Fields
EMT	Emergency Medical Technicians
EO	Executive Order
EPA	United States Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPIP	Emergency Plan Implementation
EPRI	Electric Power Research Institute
EPU	Extended Power Upate
EQ	Equipment Qualification

List of Abbreviations

ERAL	Environmental Restricted Awards List
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHA	Fuel Handling Accident
FICON	Federal Interagency Committee on Noise
FICUN	Federal Interagency Committee on Urban Noise
FLM	Federal Land Manager
FNM	Field Non-Manual
FRP	Flood Risk Profile
FSAR	Final Safety Analysis Report
FSEIS	Final Supplemental Environmental Impact Statement
FTE	Full-time Equivalent
GWh	Total Net Energy
gpd	Gallons Per Day
gpm	Gallons Per Minute
GEIS	Generic Environmental Impact Statement for License Renewal of Nuclear Plants
ha	Fish Per Hectare
HEU	Highly enriched uranium
HUD	United States Housing and Urban Development
HWSF	Hazardous Waste Storage Facility
INPO	Institute of Nuclear Power Operations
IPA	Integrated Plant Assessment
IPEEE	Individual Plant Examination External Events
ISFSI	Independent Spent Fuel Storage Installation
IRP	Integrated Resource Plan
Kg/ha	Kilogram Per Hectare
kV	Kilovolt
KW, kW	Kilowatt
kWh	Kilowatt-hour
LEU	Low Enriched Uranium
lbs	Pounds
Leq	Equivalent Sound Level
LLRW	Low-Level Radioactive Waste
LOCA	Loss of Coolant Accident
LOS	Loss of Service
MACCS2	MELCOR Accident Consequence Code System, version 2
MGD	Million Gallons Per Day
mg/L	Milligrams Per Liter
mph	Miles Per Hour
mrem/yr	Millirem Per Year
MSDS	Material Safety Data Sheets
MSLB	Main Stream Line Break
mSv/yr	Millisievert Per Year
msl	Mean Sea Level
MW	Megawatts, Electric
MWe	Megawatt, Electrical
MWh	Megawatt, Hour
MWt	Megawatt, Thermal

List of Abbreviations

NEI	Nuclear Energy Institute
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NETL	National Energy Technology Laboratory
NFPA	National Fire Protection Association
NFS	Nuclear Fuel Service
NGCC	Natural Gas-Fired Combined Cycle
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NOx	Nitrogen Oxides, or All Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
NSSS	Nuclear Steam Supply Steam
NUREG-1437	Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants
NWI	National Wetlands Inventory
ODCM	Offsite Dose Calculation Manual
O&M	Operations and Maintenance
OPA	Option Purchase Agreement
OSHA	Occupational Safety and Health Administration
PAME	Primary Aerobic Meningoencephalitis
pH	Negative Logarithm of the Effective Hydrogen Ion Concentration
PMF	Probable Maximum Flood
ppm	Parts per Million by Volume
PSA	Probabilistic Safety Assessment
PSD	Prevention of Significant Deterioration
psi	Pounds Per Square Inch
PWR	Pressurized Water Reactor
RCRA	Resource Conservation and Recovery Act
REMP	Radiological Environmental Monitoring Program
REP	Radiological Emergency Plan
RFAI	Reservoir Fish Assemblage Index
RFP	Requests for Proposals
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
ROD	Record of Decision
ROW	Right-of-Way
RWCU	Reactor Water Clean-up System
SAMA	Severe Accident Mitigation Alternative
SEIS	Supplemental Environmental Impact Statement
SERC	Southeastern Electric Reliability Council
SFI	Sport Fishing Index
SHPO	State Historic Preservation Officer
SPC	Siemens Power Corporation
SPCC	Spill Prevention Control and Countermeasure Plan
SR	State Route
SREPs	State Radiological Emergency Plans
SRS	Savannah River Site
TDS	Total Dissolved Solids

List of Abbreviations

T&E	Threatened and Endangered
TLAAs	Time-Limited Aging Analyses
TRM	Tennessee River Mile
TVA	Tennessee Valley Authority
UFSAR	Updated Final Safety Analysis Report
U.S.	United States
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
VISCREEN	Visual Impact Screening
vpd	Vehicles Per Day
VS	Vital Signs
yr	Year